Whether Continents Move Is Decided Not by the Speed but by the Length of Time One Looks

— One centimetre a year carries a plate **0.800000** m in a human lifetime of **80** years, slower than a fingernail at **3.6** cm/yr — the separator is whether the window of observation is longer or shorter than the motion — [Paper 683]

Yuuki YAMAGISHI (山岸 勇輝)
Yamagishi Complexity Torus Lab, Japan
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— From thinking to syncing. —

Abstract

Continental drift was long refused, and not because the speed had been estimated wrongly. There was only one speed, and two windows through which to see it.How one number changes its face with the length of the window is counted here.No new theorem or law is claimed. First, and this is the core. The same 1 cm/yr looks motionless in a human window and crosses the Earth in a geological one——0.800000 m in 80 years and 1000.0000 km in a hundred million (Section 2). **Second, a familiar comparison makes the slowness concrete——a fingernail grows at 3.6 cm/yr, which is 3.600000 times the 1 cm/yr of a plate** (Section 2). **Third, a fast plate reaches a quarter of the Earth in the geological window——10 cm/yr gives 10000.0000 km in a hundred million years, which is 0.249812 of the circumference of 40030.1736 km** (Section 2). **Fourth, even cut to an age that actually exists, it crosses an ocean——held for 180 Myr, 10 cm/yr gives 18000.0000 km and exceeds the 15000 km width of the Pacific** (Section 3). **Fifth, read backwards, the width of the Atlantic names an age——4500 km takes 180.0000 Myr at 2.5 cm/yr and 450.0000 Myr at 1 cm/yr** (Section 3). **Sixth, the separator is whether the window is longer or shorter than the motion——nothing is added to the speed; changing the window alone exchanges "at rest" for "crossing"** (Section 4).
Keywords: plate motion, geological time, window of observation, age of the seafloor, continental drift, speed and distance.

Scope of this paper (scope note): **No new theorem or law is claimed——plate speeds, the age of the seafloor and the history of continental positions are all standard (Kearey et al. 2009, Turcotte and Schubert 2014).The driving mechanism is not treated——mantle convection and slab pull are not entered; the speed is taken as given.No reconstruction is made——reconstructing continental positions from palaeomagnetism or geological correlation, and how those are measured, are not the subject.The speeds are not claimed——1 to 10 cm/yr are representative and move between plates and between epochs.The future is not predicted——no arrangement obtained by extending today's speeds forward is offered.Relation to earlier papers**: **Paper 682 showed that the depth of the ocean follows almost entirely from the age of its floor, 180 Myr giving 7195.7428 m——there the same age was converted into a vertical distance; here it is converted into a horizontal one.**What is added is **converting one speed into a distance for each window**, **setting it beside the growth of a fingernail**, **putting the hundred-million-year distance at 0.249812 of the Earth's circumference**, **showing that an age that actually exists still gives 18000.0000 km**, and **placing the separator on whether the window is longer or shorter than the motion**.

1. Notation and the Question

Setting: **a speed v times a window T gives a distance d. There is only one line of algebra. The question is what to take for T.**

$$d = vT, \qquad \frac{d}{C_\oplus} = \frac{vT}{2\pi R_\oplus}, \qquad T = \frac{d}{v}$$

The circumference of the Earth is $C_\oplus = 40030.1736$ km, from a radius of 6371 km.

Question: **what separates "moving" from "at rest": the speed, or the window?**

2. One Speed, Window by Window

Computation 2.1: **the distance covered by 1 cm/yr was derived for each window.**

window	distance at 1 cm/yr
one year	0.010000 m
a human lifetime (80 years)	0.800000 m
ten thousand years	100.000000 m
one million years	10.000000 km
one hundred million years	1000.000000 km

Observation 2.2

this is the core: nothing has been added on the side of the speed.A lifetime gives 0.800000 m and a hundred million years give 1000.0000 km. A window 1250000 times longer returns a distance 1250000 times larger, and no new mechanism is needed for it——"at rest" and "crossing" are two readings of one number.

Computation 2.3: **a fingernail grows at about 3.6 cm/yr, which is 3.600000 times the 1 cm/yr of a plate.**

Observation 2.4

that the two are of the same order is itself what misleads.A nail seems never to shorten however often it is cut, and grows 3.6 cm in a year if it is not——a speed is felt only when a position changes within a single act of looking.

Computation 2.5: **for each speed, the distance in a hundred million years and its share of the circumference were derived.**

speed	distance in 10^8 years	share of the circumference
1.0 cm/yr	1000.0000 km	0.024981
2.5 cm/yr	2500.0000 km	0.062453
5.0 cm/yr	5000.0000 km	0.124906
10.0 cm/yr	10000.0000 km	0.249812

3. An Age That Exists Is Already Enough

Computation 3.1: **a hundred million years is an invented window. The oldest seafloor that exists is about 180 Myr, and 10 cm/yr held for that long gives 18000.0000 km, which is 1.200000 times the 15000 km width of the Pacific.**

> **Observation 3.2**
>
> **narrowing the window to a length that exists changes nothing.Using only the span over which seafloor survives is already enough to cross an ocean——the round figure of a hundred million years is not needed.**

Computation 3.3: **read backwards: the time required to open the 4500 km of the Atlantic was derived for each speed.**

speed	time for 4500 km
1.0 cm/yr	450.0000 Myr
2.5 cm/yr	180.0000 Myr
5.0 cm/yr	90.0000 Myr
10.0 cm/yr	45.0000 Myr

> **Observation 3.4**
>
> **a width fixes one of speed and age once the other is fixed.Taking 2.5 cm/yr returns 180.0000 Myr, which is also the age of the oldest seafloor——two independent quantities landing on the same number is what supports this single line.**

4. The Separator

> **Observation 4.1**
>
> **the separator is whether the window of observation is longer or shorter than the motion.In a short window nothing moves; in a long one positions are exchanged. The speed is the same——the intuition that "continents cannot move" was never a judgement about a speed, but about a window.**

Observation 4.2

beside Paper 682.Paper 682 showed the depth of the ocean to follow almost entirely from the age of its floor, 180 Myr giving 7195.7428 m——there the age became a vertical distance; here the same age becomes a horizontal one. Seafloor sinks and travels as it ages.

Observation 4.3

what is not said.The driving mechanism and reconstructions are not treated, and the speeds are representative——what is shown is only how one speed changes its face with the length of the window.

5. Roll Call and Closing

1. **0.800000 m in 80 years** (Computation 2.1): **the human window.**
2. **1000.0000 km in 10^8 years** (Computation 2.1): **the geological window; the core.**
3. **a nail is 3.600000 times faster** (Computation 2.3): **a familiar speed.**
4. **10000.0000 km at 10 cm/yr** (Computation 2.5): **a fast plate.**
5. **0.249812 of the circumference** (Computation 2.5): **a quarter.**
6. **circumference 40030.1736 km** (Section 1): **from a radius of 6371 km.**
7. **18000.0000 km in 180 Myr** (Computation 3.1): **a window that exists.**
8. **1.200000 times the Pacific** (Computation 3.1): **it crosses.**
9. **180.0000 Myr for 4500 km** (Computation 3.3): **at 2.5 cm/yr.**
10. **long window or short** (Observation 4.1): **the separator; Paper 682.**

Closing: **Whether continents move is decided not by the speed but by the length of time one looks.One centimetre a year carries a plate 0.800000 m in a human lifetime, 3.600000 times slower than a fingernail——what does not change position within one act of looking is called at rest.The same speed gives 1000.0000 km in a hundred million years, and 10 cm/yr gives 10000.0000 km, 0.249812 of the circumference of 40030.1736 km.The round figure is not needed——cut to the 180 Myr of the oldest seafloor that exists, 10 cm/yr still gives 18000.0000 km, 1.200000 times the width of the Pacific.Read backwards, the 4500 km of the Atlantic names 180.0000 Myr at 2.5 cm/yr and 450.0000 Myr at 1 cm/yr.The separator is whether the window of observation is longer or shorter than the motion.Placed among the earlier papers——in Paper 682 the age of the seafloor became a depth; here it becomes a distance.To be honest——the driving mechanism is not treated and every speed is representative.**

References

1. Kearey, P., Klepeis, K. A., & Vine, F. J. (2009). *Global Tectonics*. Wiley-Blackwell.
2. Turcotte, D. L., & Schubert, G. (2014). *Geodynamics*. Cambridge University Press.
3. Yamagishi, Y. (2026). *The Depth of the Ocean Is an Age Before It Is a Landform, and Only the Trenches Lie Outside That Rule* [Paper 682]. Zenodo. 10.5281/zenodo.23014802

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Yuuki YAMAGISHI (山岸 勇輝)

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